

## C-NavX3™ GNSS Receiver



### FEATURES

**Multi-frequency GPS/GLONASS/Galileo/BeiDou dual antenna position and heading receiver**

**Sub-decimeter level position accuracy using C-Nav<sup>®</sup> LEO corrections**

**Sub-degree dual GNSS heading and pitch or roll**

**Integrated UHF radio, cellular modem (LTE), Bluetooth, and Wi-Fi**

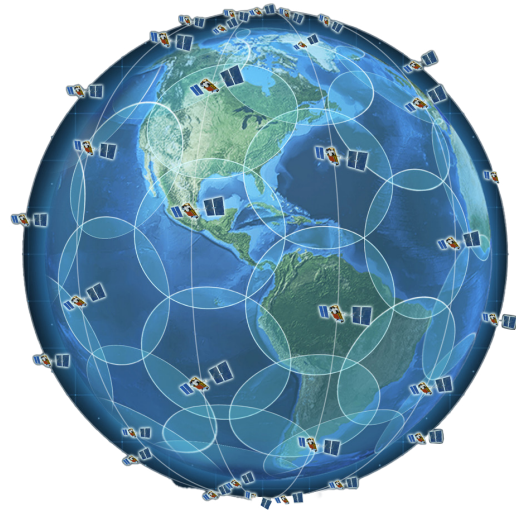
# C-NavX3™ GNSS Receiver

## Additional Features

- » All-in-view 226 universal tracking channels for navigation plus satellite-based augmentation systems (SBAS), and Iridium® Augmentation
- » Centimeter-level multi-constellation positioning with C-Nav LEO Correction service delivered via Iridium Burst®
- » Dual antenna option for sub-degree GNSS heading
- » Integrated Wi-Fi\* (802.11abgn 2.4Ghz)
- » Integrated UHF\* (410 - 475 MHz, 12.5/25 KHz Channel Spacing, Satel Protocol)
- » Integrated Cellular (2G, 3G & 4G LTE CAT 1)
- » Integrated Bluetooth\* (v5.1/BTE)
- » 1 pulse-per-second (PPS) output
- » Automatic 72 hour rolling data log for incident support (data rate dependent)
- » Compatible with the full suite of C-Nav software, including C-Monitor, C-Scape, and C-NaviGator IV
- » EN60945 Marine Certified
- » Small, rugged GNSS enclosure
- » CAN Interface to the C-NavS3 I/O expansion module



C-NavS3 I/O Expansion Module



Iridium Constellation courtesy of Iridium Communications Inc.

## Technical Data

| GNSS                                                     |                                                                                                                  |          |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|----------|
| GNSS Engine                                              | Dual Topcon B125 GNSS Chipset                                                                                    |          |
| Tracking Channels                                        | 2x 226                                                                                                           |          |
| GNSS Connectors                                          | 2x N-Type                                                                                                        |          |
| GNSS Antenna Option                                      | C-Nav289 GNSS Antenna                                                                                            |          |
| GPS                                                      | L1 C/A, L1C, L1P, L2C, L2P, L5                                                                                   |          |
| GLONASS                                                  | G1 C/A, G1P, G2 C/A G2P, G3                                                                                      |          |
| Galileo                                                  | E1B, E5a, E5b, E5AltB0C                                                                                          |          |
| BeiDou                                                   | B1, B2 (BDS-2), B1C/B2a/B2b (BDS-3)                                                                              |          |
| QZSS                                                     | L1 C/A, L1C, L1-SAIF, L2C, L5                                                                                    |          |
| SBAS                                                     | L1, L5                                                                                                           |          |
| Time to First Fix                                        | Hot: < 15 s    Warm: < 44 s<br>Cold: 60 s                                                                        |          |
| Reacquisition                                            | 1 s                                                                                                              |          |
| 1PPS                                                     | Relative accuracy: 30 ns<br>Resolution: 5 ns<br>Wide positive going: 10 ms<br>LVTTTL: 3.3 V<br>Impedance: 50 ohm |          |
| Position Accuracy (95%)                                  |                                                                                                                  |          |
|                                                          | Horizontal                                                                                                       | Vertical |
| Standalone                                               | 2.4 m                                                                                                            | 3.6 m    |
| SBAS                                                     | 1.6 m                                                                                                            | 2.4 m    |
| C-Nav® LEO PPP (requires Iridium Edge Antenna)           | <5 cm                                                                                                            | <10 cm   |
| Heading Accuracy (RMS)                                   |                                                                                                                  |          |
| 0.2 degrees/D (where D is the baseline length in metres) |                                                                                                                  |          |
| Inclination Accuracy (RMS)                               |                                                                                                                  |          |
| 0.3 degrees/D (where D is the baseline length in metres) |                                                                                                                  |          |
| Hardware I/O                                             |                                                                                                                  |          |
| RS-232 (up to 115,200 bps)                               | 2x DSUB9 Connectors (on S3 output harness)                                                                       |          |
| RS-422 (up to 115,200 bps)                               | 2x DSUB9 Connectors (on S3 output harness)                                                                       |          |
| Ethernet (10/100 Mbps)                                   | 1x RJ45 Jack (on main X3 to S3 harness [up to 8 sessions])                                                       |          |
| 1PPS                                                     | 1x BNC Connector (on S3 output harness)                                                                          |          |
| USB Connector (Virtual Serial)                           | 1x USB (on S3 output harness)                                                                                    |          |
| Iridium Edge Antenna Connector                           | 1x M12 (on S3 output harness)                                                                                    |          |
| C-NavX3 LTE Connector                                    | 1x SMA                                                                                                           |          |
| C-NavX3 Wi-Fi/Bluetooth Connector                        | 1x SMA                                                                                                           |          |
| C-NavX3 UHF Connector                                    | 1x TNC                                                                                                           |          |

| Software I/O                      |                                                                                                                                                                                                                               |                                   |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| Output Message Formats            |                                                                                                                                                                                                                               |                                   |
|                                   | 1Hz or 5Hz                                                                                                                                                                                                                    | 1Hz                               |
| NMEA                              | DTM, GGA, GNS, GRS, HDT, GLL, VTG, ZDA                                                                                                                                                                                        | GBS, GSA, GST, GSV, RMC, ROT, VHD |
| Proprietary NMEA / Binary         | PNCTGGA, PNCTDTM, PTPSRVHD, PVT1B (Binary)                                                                                                                                                                                    | PNCTGST, PNCTMDE, PNCTSET         |
| RTCM                              | v2.3 input/output                                                                                                                                                                                                             |                                   |
| Embedded WebUI                    |                                                                                                                                                                                                                               |                                   |
| Functionality                     | QA/QC Performance Monitoring<br>Receiver Configuration                                                                                                                                                                        |                                   |
| Physical and Environmental        |                                                                                                                                                                                                                               |                                   |
| C-NavX3 Dimensions (L x W x H)    | 203 mm x 151 mm x 56 mm                                                                                                                                                                                                       |                                   |
| C-NavS3 Dimensions (L x W x H)    | 151 mm x 140 mm x 46 mm                                                                                                                                                                                                       |                                   |
| C-NavX3 Weight                    | 1.2 kg                                                                                                                                                                                                                        |                                   |
| C-NavS3 Weight                    | 0.4 kg                                                                                                                                                                                                                        |                                   |
| C-NavX3 Power Consumption         | 12 W                                                                                                                                                                                                                          |                                   |
| C-NavX3 Voltage Input             | 9 to 32 V DC (on main X3 to S3 harness)                                                                                                                                                                                       |                                   |
| GNSS Antenna Voltage              | 5 V DC                                                                                                                                                                                                                        |                                   |
| GNSS Antenna Current              | 100 mA (Max)                                                                                                                                                                                                                  |                                   |
| Iridium Antenna Power Consumption | 1.6 W (Max)                                                                                                                                                                                                                   |                                   |
| Ingress Protection                | IP67                                                                                                                                                                                                                          |                                   |
| Operating Temperature             | -40 to 70°C                                                                                                                                                                                                                   |                                   |
| Storage Temperature               | -40 to 80°C                                                                                                                                                                                                                   |                                   |
| Humidity                          | 95% non-condensing                                                                                                                                                                                                            |                                   |
| Vibration                         | IEC60945, Section 8.7                                                                                                                                                                                                         |                                   |
| Compliance/Approvals              | IEC 60945:2002 Section 8, Protected<br>NMEA-0183 compatibility up to v4.1<br>FCC Part 15, Class B<br>CE/UKCA<br>RoHS<br>WEEE<br>QC message strings comply with the recommendations OGP 373-19 and IMCA S015 Rev. 1 (Feb 2021) |                                   |



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